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ABSTRACT

Various aspects of the development of a computerized matriculation system at Oakton Community College (OCC) are described in this collection of reports and papers. First, John P. Donahue provides background information on the system, focusing on the personnel involved in designing the system and offering observations about the development of a graduation requirements database. Next is a paper on the development of the Graduation Requirement Advisement System (GRADS) at OCC by Steven R. Helfgot, which focuses on: (1) the conditions that suggested the need for a computerized advisement system; (2) the two major functions of the system; i.e., the provision of an accurate assessment of the student's progress toward graduation, and the identification of and communication with students who were not meeting minimum standards; (3) the use of Miami-Dade Community College's Advisement Graduation Information System and Response System with Variable Prescriptions as models; (4) the types of information for students and counselors to be included in the system; (5) the work and recommendations of the college-wide committee on standards; (6) the supports and sanctions corresponding to four academic status stages; (7) the identification of students falling below the standards of academic progress; and (8) the schedule of implementation. Next, a memo from Richard Kirtley highlights findings from a preliminary analysis of system needs. Finally, Gail Cohen's overview of GRADS and its complimentary system. Standards of Academic Progress (SOAP), is presented. (LAL)

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PRESENTATION

DEVELOPMENT OF OAKTON COMMUNITY COLLEGE'S GRADUATION/REGISTRATION/ADVISEMENT SYSTEM (GRADS)

and

THE STANDARDS OF ACADEMIC PROGRESS (SOAP)

UTILIZING COMPUTER RESOURCES

JC 840 184

For the Working Conference on:
Student Information Systems
Sponsored by Maricopa Community College District and The League for Innovation
Tuesday, February 7, 1984

By: John P. Donohue
Vice President for Student Development

Background Information and History

Oakton Community College is a public community college which was established in 1970 and began classes in September of that year with an enrollment of 832 students and an FTE of 400. The Fall 1983 enrollment was 9710 students with an FTE of 4890.

Oakton Community College is located in a northwest suburban area of Chicago, serving a district of approximately 100 square miles with a population of approximately 400,000. In addition to the credit enrollment, Oakton serves each semester approximately 12,000 students in its noncredit education program.

Throughout its fourteen years of existence, Oakton Community College has relied very heavily on computer support for both academic and administrative purposes. Starting in its first year, Oakton went "on line" with a student registration system, supported by an IBM 360 model 25 computer. During the early '70's, I began discussions with the Director of Information Systems, who reported to me, about the possibility of developing what I then called a "Computerized Matriculation System." Through these extensive discussions, it was determined that what was necessary would require Oakton developing a data base management system. The IBM Corporation was approached and they agreed to an application transfer study. We began developing in 1978 a Data Based System and chose our on-line student registration system for our first application to a data base environment. In 1980 we went on line with our Student Information Management System.

In 1981 we became aware of the RSVP system that was being developed at Miami-Dade Community College and began a series of discussions with Dr. Richard Schinoff, who had the major responsibility for developing their system; of particular interest were the system known as AGIS (Advisement Graduation Information System) and also their academic alert system.

In September of 1982 I assigned the responsibility for the development of the Computerized Matriculation System to my assistant, Dr. Steven Helfgot, Director of Student Development Services. He consulted extensively with Dr. Schinoff during the early months of 1983 and we began to define the systems development and programming time that would be necessary for the development of such a system. As a part of this planning process, Mr. Richard Kirtley, a systems analyst consultant, was employed to help us to define the elements of the system. A letter accompanying his final report to us is made a part of this

packet. Mr. Kirtley's final report is too technical and voluminous to reproduce; however I have a copy with me should anyone be interested.

In August of 1983, the task of developing this system was assigned to a senior systems analyst on our staff, Ms. Gail Cohen. At that time approximately 200 man days were assigned to the development of this system. It was at this point that we gave the Computerized Matriculation System the acronym of "GRADS" (Graduation/Requirements/Advisement System).

At the same time that the GRADS system was being developed, Dr. Helfgot was co-chairing a College-wide committee charged with the responsibility for developing standards of academaic progress. The work of that committee has now been completed and Oakton's Board of Trustees is considering the approved policies to put the Standards of Academic Progress in place. Because the Graduation/Requirements/Advisement System was being developed, it seemed appropriate to integrate into the system the Standards of Academic Progress policy recommendations.

Incorporated into this report is the paper I asked Dr. Helfgot to write in preparation for this presentation. In his paper he outlines the considerations that led to the development of both systems and some of the elements that needed to be considered in developing such a system. This report could be reviewed as a user's perspective on the elements going into making such a computerized system.

Part of this report is an overview of the graduation checking and the Standards of Academic Progress systems as written by the senior systems analyst assigned to both projects, Ms. Gail Cohen. In all, both systems, when fully developed, will have taken approximately 400 man days of systems and programming time. It is anticipated that both systems will be on line in time for the beginning of our Fall term in August of 1984. The GRADS system is scheduled for pilot runs during the month of February and the Standards of Academic Progress subsystem is scheduled for pilot runs in early Summer.

Some observations I would make about our experiences in developing both systems would include careful attention to the development of the graduation requirements data base. In translating curriculum requirements as recorded in our College catalog, we discovered there were several ambiguities or general statements about curriculum requirements needing to be clarified or made specific in order for the curriculum data base to be developed as a part of the computer system. We

also learned that the handling of transfer data for students transferring into Oakton Community College needed to be interpreted and placed on the students data file on a timely basis if the system was going to be of value to the student. Probably most importantly, we learned, or, more appropriately, hoped to learn that with the support coming from the GRADS system and the SOAP system, we may be able to finally develop an effective academic advising system. Over the years we have tried to involve faculty in a variety of ways in support of an academic advising system. The comments that came to us about our various approaches always led us to one conclusion: in order to make any academic advising system work, we had to have timely and accurate information in the hands of faculty advisors if they were going to feel confident in advising our students. We hope that finally we will have an answer to this continuing problem with the implementation of GRADS and the SOAP systems.

Finally, I have been somewhat hesitant in preparing for this presentation to report on a system or systems that have not yet gone on line. We are very confident this system will work once we do put it on line; however, I cannot report on a system that is known to be successful. I hope that a year from now I will be able to make such a report.

JPD:grm
2/1/84

THE DEVELOPMENT OF THE GRADUATION REQUIREMENTS ADVISEMENT SYSTEM AT OAKTON COMMUNITY COLLEGE

by:

Steven R. Helfgot, Ed.D.
Director of Student Development Services

The combination of several things suggested that Oakton Community College, a comprehensive public community college serving over 9,000 credit students each semester, needed to develop a computerized advising system:

1. Our student body had become too large for student development faculty (counselors) to know most students well enough to have an accurate picture of their academic records; most students never even saw a counselor.
2. With our extensive use of an on line registration and records system, we had the potential to develop a computerized system. Further, as more and more information was stored in the Student Information Management System (SIMS), a student data base, less and less of it was available or being kept in "hard copy" form.
3. Student "consumerism," which included concern for accurate and timely advising, was on the rise. Complicated requirements, increasing educational costs, and competition for both jobs and transfer admissions to four-year schools made students very information conscious.
4. We were concerned about failure; it appeared that too large a number of our students were failing to meet their goals, and that we, as an institution, were also failing them. Thus, the College undertook to revise and strengthen its Standards of Academic Progress (SOAP). It became clear

as the "SOAP" Committee pursued its work that meaningful standards required being able to identify students quickly, contact them and provide a series of supports and sanctions for them, so as to help increase their chances of success. It seemed that this would require some sort of automated system.

We determined that we wanted a system that could perform two major generic functions. The first function would be to give the individual student and the individual counselor an accurate assessment of the student's progress toward graduation in his/her program or major. This would essentially be a "reorganization" of the student's transcript information. The second function was more complicated, and would, in fact, be a series of functions that would identify and communicate with students who were not meeting minimum academic standards.

We found the Advisement Graduation Information System (AGIS) and Response System with Variable Prescriptions (RSVP) both in place at Miami Dade Community College, and working there to support a new system of academic standards, to be very similar to what we wanted. A visit was made to Miami Dade to see the system in operation during an advisement/registration period. Later the Dean of Student Services from Miami Dade visited the Oakton campus to discuss the development of the system, its use, and its impact at that institution. He also had some brief technical discussions with the consultant (a former senior employee of our computer center) who had been asked to do the initial design work for our system.

Our needs and expectations, at least as far as a system that could provide students with "advising" for graduation, then became clear. That system would have to tell a student and/or a counselor, the following about

the student's work in his/her curriculum or program:

1. general education courses,
   - completed (with grade)
   - in progress
   - still needed
2. core program requirements
   - completed (with grade)
   - in progress
   - still needed
3. elective courses
   - completed (with grade)
   - still needed
4. transfer credit
   - accepted (in semester hours)
   - institution from which accepted
   - Oakton equivalent
5. cumulative grade point average
6. summary information

As this part of the system was being designed, a college-wide committee on Standards of Academic Progress (SOAP) was at work. Over six months this committee developed and recommended significant changes in the College's academic standards. Underlying the recommendations was a commitment to help students succeed whenever possible and, under all circumstances, to be sure that students had accurate and timely information as to their academic status. Computer support would be essential.

The final recommendations contained two major standards which all students who had attempted 12 semester hours would be required to meet.

1. Students would be required to maintain each semester and cumulatively a grade point average of 2.0 (C).

2. Students would be required to complete more than 50% of their courses each semester.

Students failing to meet these standards would be subject to a series of (voluntary) supports and (mandatory) sanctions. The "severity" of these would escalate as the student failed to meet the standards over several consecutive semesters. The following summarizes the system:

Number of Consecutive Semesters below Standards	Academic Status	Interventions/Sanctions
1	Stage I: Academic warning	Student is informed of problem by computer generated letter and advised to seek support and assistance from a variety of college resources.
2.	Stage II: Academic restriction/ probation	Student is informed of status by computer generated letter. Letter indicates that student will be restricted in one or more of the following ways: a. number of hours/courses for which may enroll. b. specific courses which may be required to take. c. specific courses which may be prohibited from taking. Student must see counselor to determine specific restriction(s).
3	Stage III: Academic suspension	Student informed by letter that he/she will be dismissed for one full semester. May then return under Stage II restriction(s).
4 +	Stage IV: Academic dismissal	Student is informed by letter that he/she is dismissed for 12 months; return is by petition only, and if student returns, it is under Stage II restriction.

Identification of students falling below any of the standards and initial communication with them would all be automated. Thus, the second part of what we were now calling the Computerized Graduation Requirements Advisement System ("GRADS") would have to do a number of different things including:

1. identifying students with a semester g.p.a. below 2.0.
2. identifying students with a cumulative g.p.a. below 2.0.
3. identifying students who had completed 50% or less of their courses each semester.
4. assigning students to appropriate "SOAP" stages.
5. generating letters informing students as to their academic status.
6. generating lists of students in various categories for use by College personnel.
7. placing registration/enrollment restrictions on students under Stage II, III, and IV restrictions.

Though there are other elements to the "SOAP" system, these were the most important ones as far as computer support was concerned.

The GRADS system is now in its final stages of development. Through the Spring and Summer of 1984 programming will be completed and testing of the system will begin. It is hoped that during the Summer months, as students are registering for the Fall semester, the first group of GRADS advisement reports will be printed. It is anticipated that the SOAP recommendations will be implemented starting with the Fall 1984 semester and that when that semester ends, the first group of students in academic difficulty will be identified and contacted by the system.

In the future, enhancements of the system will be possible. These include transfer course equivalencies, which will allow students to receive a printout of what courses are needed to transfer to what institution; and "feedback" from the GRADS system to those who build the master schedule that will allow courses to be scheduled on the basis of how many students need, in any given semester, a particular course to meet a requirement.

cw-gm
2/1/84

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Mr. Gary Saben
Oakton Community College
Des Plaines, Illinois

August 1, 1983

Dear Gary:

Thank you very much for the opportunity to perform the enclosed preliminary analysis of the needs for an Oakton College Graduation Requierment Advisement System (GRADS). The values of such a system are not detailed in this report, but I hope they are apparent in the elements of the report because they do exist. Not the least of these benefits, I feel, would be the availability and flexibility of the data a student needs to evaluate his own progress toward his graduation goals. After doing this preliminary analysis it is easy to see why the Oakton administration puts a high value tag on an advisement system. I hope it can be implemented as the valuable sub system of SIMS that it should be.

You requested a cover memo for this report - please accept this letter as such a memo. The following items are not in any particular sequence other than as they occurred to me.

1. As Mr. Dick Schinoff of Miami Dade exemplifies, a system like this must have total involvement from an administrator who is in a position to make immediate decisions and to become intimately involved in the system to the point of entering requirement data on the terminal.

2. There will be a large amount of terminal entry work before the system can be completely implemented. This will not be rote data entry but will require understanding of the data being entered and its part in the whole system. Decisions must be made as to who will do this and what their education process will be during the system implementation.

3. To make GRADS most effective the prerequisite checking facility of SIMS should be used so that prerequisites can be uniformly checked for all students.

4. The amount of disk input and internal processing required to do the graduation status checking in one program will cause a strain of the system resources. It is difficult to estimate the total effect, but it seems safe to say that three or more terminals requesting a status check at one time could negatively effect response time in the rest of the system. It might be of interest that we will be doing in one program what they do in twenty-five separate programs at Miami Dade.

5. At Mr. Schinoff's strong recommendation I have included preliminary design for waivers and substitutions for graduation requirements in the system.

6. Also, after talking to Mr. Schinoff, I have designed in a way to change requirements and to check a student's status based on his acceptance date and the requirements active at that time.

7. A letter quality printer would definitely add to the effectiveness due to personalization of the letters created by the Standards of Progress sub system.

8. Because of the nation wide lack of experience in using a computer to do the tasks GRADS requires, the system will undoubtedly be changing considerably during its first months of use. This should be kept in mind during detailed design so that as much flexibility is kept as possible.

9. A printer must be considered for Skokie if immediate status reports are to be available there.

10. Changes which are currently being made to the admissions data in SIMS were not considered here since the changes were not completely known.

11. All incoming transfer classes must be translated to Oakton equivalents. Miami Dade currently has three people doing this.

12. The student's major curriculum code must be accurate for this system to work correctly.
13. The potential to enter an optional major code as a temporary override to the student's major for a status check is not mentioned in the report but it should be included in the detail design of SPGS. The ability to enter an override on the student's catalog year should also be included. 14. A check should be made to be sure SDTR is automatically moving the changed grade to the previous grade field in STRNSCT when a grade update is entered. If not the standards of progress programs dealing with completed x grades will not work.

Thank you again, Gary, and to all of your staff for your cooperation and help during this study. My appreciation is also extended to Dr. Helfgot for all of his cheerful help.
I would very much like to assist you in any way possible to go forward with the successful implementaion of SIMS-GRADS.

Yours truly,

Rich Kirtley

Rich Kirtley

DRAFT

1/23/84

SIMS - GRADUATION CHECKING
AND STANDARDS OF PROGRESS

The above system is to assist the Office of Student Development in counseling our students. It should enable them to identify students in given curricula and determine their status on an immediate basis. It will also be used to help identify students who may be in academic difficulty and to warn these students of their potential academic problems on a timely basis.

To accomplish the above goals, the system derives its input from two sources: the Graduation Requirements Data Base and individual student records (including special student data elements and completed and in-progress course work). Based on these sources, a variety of outputs will be made available to the Office of Student Development to assist with their counseling goals. In addition, degrees and certificates can be assigned to students who petition for them.

The system is a sub-system of the Student Information Management System (SIMS) which is a CICS DL/I data base system, presently being run on an IBM 3031.

The primary file of the graduation-checking sub-system is the Graduation Requirements Data Base. This data base is a collection of all the curricula offered by Oakton Community College under which students may work toward earning their degrees and certificates. It is to be developed this spring by Student Services through the use of 10 on-line transactions. After its creation, it will be accessble via batch and on-line programs for student degree-checking.

The system was initially designed by an outside consultant, taking approximately ___ days. It was further defined and programmed in 94 days. (On-line graduation-checking against the data base is still being programmed).

SIMS - GRADUATION CHECKING AND STANDARDS OF PROGRESS

The above system is to assist the Office of Student Development in counseling our students. It should enable them to identify students in given curricula and determine their status in those curricula (or different curricula) on an immediate basis. It is also to be used to help them identify students who may be in academic difficulty and to warn these students of their potential academic probelms on a timely basis.

To accomplish the above goasls, the system will derive its inputs from two sources, the Graduation Requirements Data Base and individual student records (including special student data elements and completed and in-progress course work). Based on these sources, a variety of outputs will be made available to the office of Student Development to assist them with their counseling goals. In addition, we will be able to automatically assign degrees and/or certificates to students who have petitioned for them.

The following pages describe in greater detail the above process.

Graduation Requirements Data Base

This data base is essentially a collection of all the curricula offered by Oakton under which students may work toward earning their degrees and/or certificates.

The data pertinent to each curriulum is generally organized as follows. First of all, the prime (or root) information is kept in a segment that is keyed by a unique four-position numeric field (the curriculum code). Information retained here about the curriculum is its descripton, the total hours required to graduate from this program, the minimum GPA required to graduate, and the maximum number of hours the student is allowed to take in developmental courses. If this data is ever changed, the change will be effective for all students who ever were or are in the program (i.e. no historical copies are kept of this data).

Within each curriculum, there are groups of requirements. Each of these groups have a general description. These general descriptions are found in the second-level segments of the data base and, like the root data, will be effective for all terms the program is offered.

Within each group of requirements may be found a series of requirement sets. Each set has its description retained in a segment as well as the priority level of the requirement set within the group. This priority number must be established properly

because it will be used to determine the order in which a student's completed courses are applied to the curriculum's requirements.

Finally, each requirement set is defined in detail in the lowest-level segment type. This segment includes the courses or course areas and their detail specifications as established by the requirements.

Because requirements may change, a data element was added to those segments to allow for the retention of historical requirements. The department responsible for maintaining this data base must be sure to apply the changes for the correct terms via their terminal entries.

To exemplify the above general descriptions by working with OCC catalog 1982-84, look at curriculum 0700 on page 57. This sends us to pages 39-40 for the general education requirements. The terminal operator after entering the general information for curriculum 0700 would set up a general group description called "general education core". Then she would add a requirement set called "interdisciplinary" followed by four detail requirements for HUM101, NSC106, PSY107 and SSC101 according to the proper logical formula. Next, she would key in a requirement description called "Area I - Communications", followed by its detail, and so on. If a student's completed courses are to be checked first against "Area I Communications requirements', that set of requirements would need to be given a higher priority number than the "interdisciplinary" set. When the "general education core" requirement group was established, the operator would continue keying the remainder of the program requirements.

Student Data Base

In addition to completed and in-progress courses, other data elements will be drawn from the Student Data Base, including graduation petitioning dates, terms and possibly curricula and the year of the catalog requirements under which the students are working. All transfer courses will also be translated to OCC equivalents and applied to this data base.

Finally, substitutions and waivers will be applied to individual student records. Waivers may be applied for completed requirement sets or on a specific requirement basis. Substitutions may be done for specific requirements only.

Outputs of System

The Office of Student Development will be able to receive the following types of reports from this system:

1. Student graduation status reports showing where the students exactly stand in pursuit of their degrees or

certificates.

2. Standards of progress reports listing the following types of students:

   1) Students who have either a semester or cumulative GPA below some specified level for a specified term.

   2) Students who have not successfully completed more than a specified percentage of their attempted classes for a specified term or range of terms.

   3) Students who have a specified number of X and R grades for a selected term or range of terms.

   4) Students who have specified percentage or more of their credit hours outside of their major curriculum areas.

In addition, they will be able to select specific students and have letters automatically printed for these students. (This area has not been fully defined. We are presently only going to select and print letters to students who are "currently" enrolled in a program that has had requirement changes.

This system is also to be used to grant automatically on a mass basis, degrees and awards to students who have petitioned for those degrees and who have met all requirements for their programs. Listings of students who would be eligible (assuming in-progress class work is successful) to graduate who have not petitioned, would be provided so the students could be notified. Listings of all students who petitioned for graduation for a specified term would also be made available.

Finally, the system includes a variety of batch reports to be used to help those involved with data maintenance.

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